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Reynolds

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(54) **SOCKET DEVICE FOR USE WITH TRAILER JACKS**

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B25B 13/06 (2006.01)

(52) **U.S. Cl.**
CPC ***B66F 13/00*** (2013.01); ***B25B 13/06*** (2013.01); *Y10T 279/3418* (2015.01)

(58) **Field of Classification Search**
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USPC 81/121.1, 124.2, 176.1, 176.2, 180.1, 81/52; 254/13, 122, 126; 279/143, 145, 279/157; 280/766.1; 411/910
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

2,662,434	A *	12/1953	Burkhardt	173/93.6
2,712,254	A *	7/1955	Schodeberg	173/93.6
3,490,547	A *	1/1970	Stewart	173/29
4,625,599	A *	12/1986	Icard	81/461
5,050,467	A *	9/1991	Brown et al.	81/466
5,148,724	A *	9/1992	Rexford	81/60
5,333,523	A *	8/1994	Palm	81/177.85
5,876,526	A *	3/1999	Hamade et al.	152/416
5,897,121	A	4/1999	Case	
5,911,437	A *	6/1999	Lawrence	280/766.1
5,950,990	A *	9/1999	Castillo	254/126
6,010,154	A *	1/2000	Payne et al.	280/766.1
6,125,725	A *	10/2000	Fox et al.	81/177.8
6,218,746	B1 *	4/2001	Gouge, Jr.	310/50
6,237,894	B1 *	5/2001	Cotner et al.	254/1
6,354,176	B1 *	3/2002	Nordlin	81/124.4
6,526,850	B1 *	3/2003	Miller	81/177.2
6,695,289	B1 *	2/2004	Mickael	254/122
7,096,765	B1 *	8/2006	Diggle et al.	81/124.4
7,841,261	B2 *	11/2010	Milligan et al.	81/121.1
8,167,273	B2 *	5/2012	Sjostedt	254/278
8,322,764	B2 *	12/2012	Miller et al.	294/51
8,590,417	B1 *	11/2013	Bono et al.	74/545
2001/0045550	A1 *	11/2001	Reilly et al.	254/376
2004/0007101	A1 *	1/2004	Sasaki	81/121.1
2005/0109996	A1 *	5/2005	Razzaghi	254/126
2006/0097235	A1 *	5/2006	Wu	254/126

(Continued)

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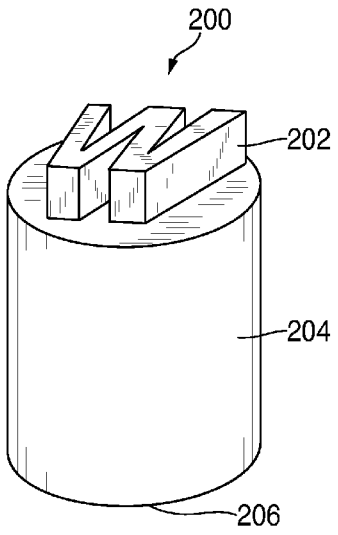
(57) **ABSTRACT**

In an embodiment of the present invention, a socket device comprises a sleeve portion for engaging the rotatable driveshaft and a socket portion for use with an impact hammer. The sleeve portion further comprises opposing openings to engage a locking mechanism, such as a pin-lock, nut and bolt, cotter pin, or other locking device appreciated by those with skill in the art.

3 Claims, 3 Drawing Sheets



(56) **References Cited**

U.S. PATENT DOCUMENTS

2006/0196321 A1* 9/2006 Carroll 81/177.2
2009/0151515 A1* 6/2009 Veltri 81/52
2011/0012333 A1* 1/2011 Griffin 280/766.1
2013/0014616 A1* 1/2013 Putsch et al. 81/121.1
2013/0264806 A1* 10/2013 Collins 280/766.1

* cited by examiner

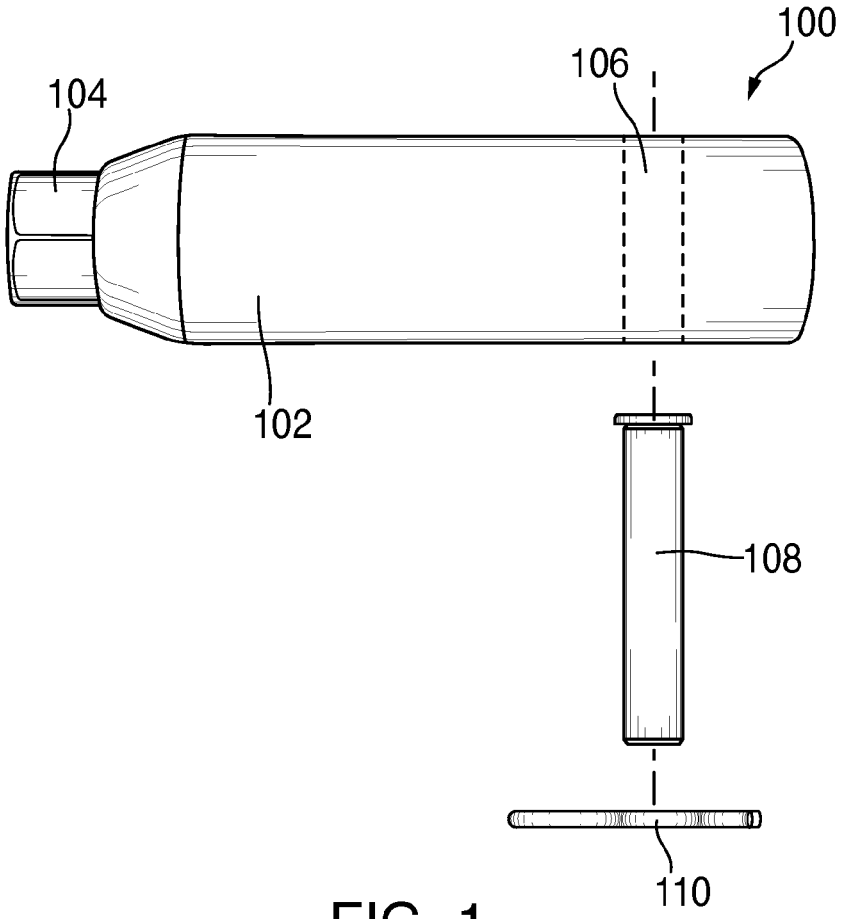


FIG. 1

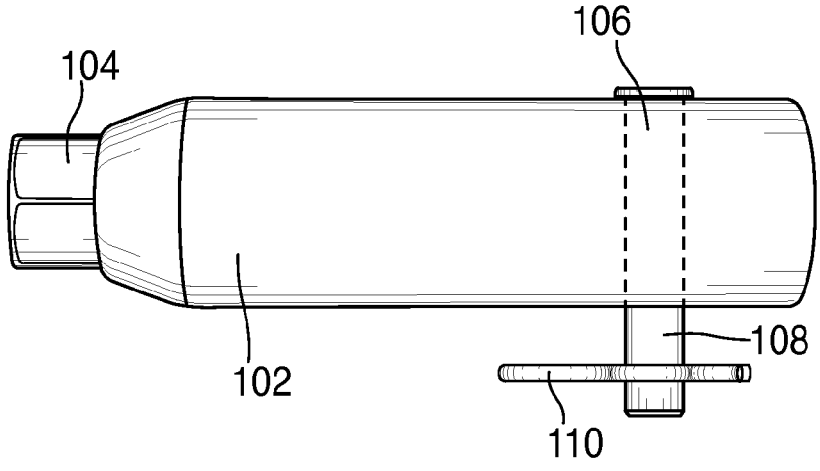


FIG. 2

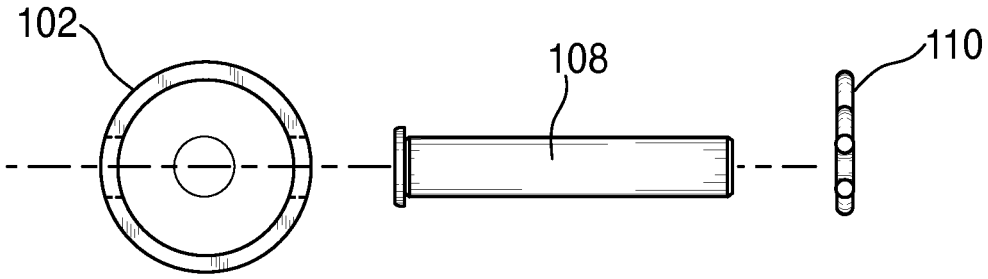


FIG. 3

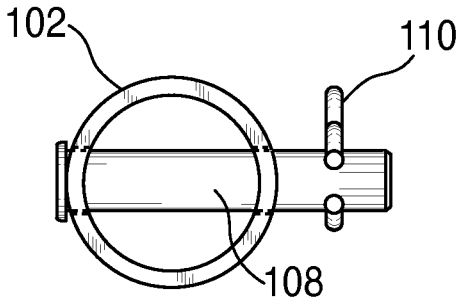


FIG. 4

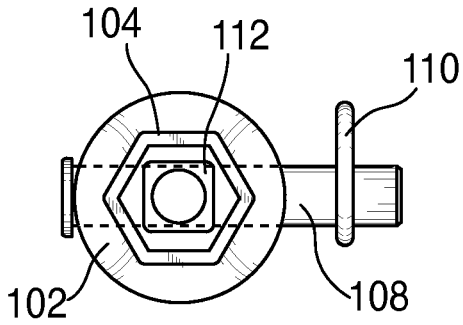


FIG. 5

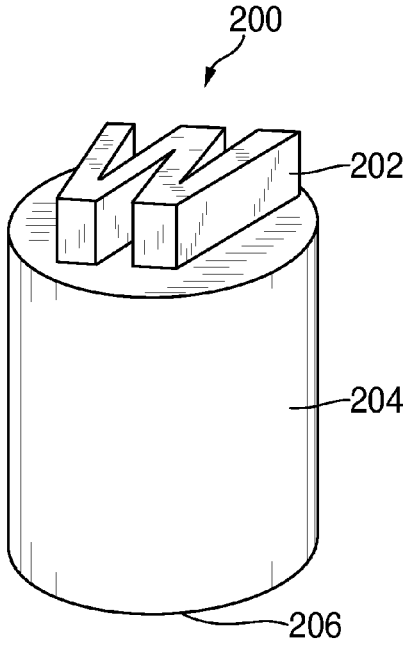


FIG. 6

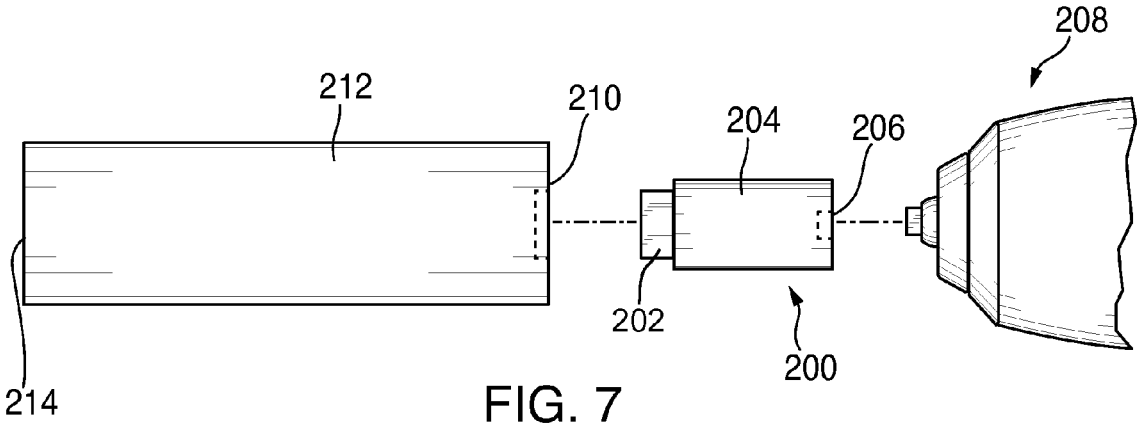


FIG. 7

SOCKET DEVICE FOR USE WITH TRAILER JACKS

CROSS-REFERENCE TO RELATED APPLICATIONS

This application claims the benefit of U.S. Provisional Application Ser. No. 61/558,138, filed on Nov. 10, 2011, and is incorporated herein by reference.

BACKGROUND

1. Field of the Invention

The present invention relates to tractor-trailers and the manner in which they are raised and lowered. More particularly, the present invention relates to a socket device attachable to an impact wrench, also known as an impact hammer, so as to raise and lower the jacks of a trailer.

2. The Relevant Technology

The most common way to raise and lower a tractor-trailer (semi-trailer) is by manually actuating the rotatable driveshaft by using a crank arm. This method is very difficult and time-consuming, especially when raising a loaded trailer. This method is also ill-suited for older individuals, those suffering from ailments, or during times of inclement weather. The prior art has attempted to alleviate the problem by using a drill (U.S. Pat. No. 5,897,121), but fails. Standard drills generally do not have sufficient torque, so specialized drills must be used. Furthermore, the chuckable-end portion may loosen under sufficient torque, rendering the socket useless. The present invention seeks to solve these problems.

SUMMARY OF EXAMPLE EMBODIMENTS

In an embodiment of the present invention, a socket device comprises a sleeve portion for engaging the rotatable driveshaft and a socket portion for use with an impact hammer. The sleeve portion further comprises opposing openings to engage a locking mechanism, such as a pin-lock, nut and bolt, cotter pin, or other locking device appreciated by those with skill in the art.

In another embodiment, the socket portion comprises a keyed end. In one embodiment, the keyed end engages an adapter for use with a standard impact hammer. In another embodiment, the keyed end engages a keyed impact hammer.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a side view of a socket device with the pin-locking mechanism removed

FIG. **2** is a side view of a socket device with the pin-locking mechanism engaged

FIG. **3** is a top view of a socket device with the pin-locking mechanism removed

FIG. **4** is a top view of a socket device with the pin-locking mechanism engaged

FIG. **5** is a bottom view of a socket device with the pin locking mechanism engaged

FIG. **6** is a perspective view of a keyed adapter

FIG. **7** is a perspective view illustrating a keyed socket, keyed adapter, and impact hammer

DETAILED DESCRIPTION OF EXAMPLE EMBODIMENTS

The following descriptions depict only example embodiments of the invention and are not to be considered limiting of its scope.

In general, an embodiment of the proposed invention relates to a socket device **100** for use with an impact wrench (not illustrated), also known as an impact hammer, so as to raise and lower the jacks on a trailer. As shown in FIG. **1**, a sleeve portion **102** is connected to a socket portion **104**. The sleeve portion **102** further comprising a space **106** (defined by opposing openings) to receive the locking pin **108**. The locking pin **108** being locked in place with sub-locking pin **110**, such as a cotter pin. While the preferred embodiment uses a locking pin **108**, it will be appreciated by those with skill in the art that other locking devices, such as a nut and bolt, may be used.

The sleeve portion **102** is sized so as to slide over and engage a rotatable driveshaft (not illustrated), and as shown in FIGS. **2-4**, is locked into place using locking pin **108**. An impact hammer (not illustrated) is received in the socket portion **104** through space **112**, as illustrated in FIG. **5**. The impact hammer then actuates the rotatable driveshaft, thereby raising or lowering the trailer jacks (not illustrated). Socket device **100** is comprised of materials suitable to withstand the torque required to raise and lower the trailer jacks. By way of example, and in no way limiting, such materials may comprise steel, iron, their derivatives or combinations, or any other material strong enough to withstand the torque required, known to those with skill in the art.

As shown in FIGS. **1**,**2**, and **5**, the socket portion **104** may also comprise an outer portion in the shape of a hexagon, or similar, to allow for easy use with other hand-actuated tools.

As shown in FIG. **6**, another embodiment of the present invention comprises a keyed adapter **200**. The keyed adapter **200** comprising a keyed portion **202**, a shaft **204**, and an opening **206** to receive an impact hammer. Keyed portion **202** may take a variety of shapes and sizes, so long as the torque required can be sustained. For example, the keyed portion **202** may comprise letters, such as a "W" for the brand Wal-Mart or an "S" for the brand Swift, or any other shape or size. As more fully illustrated in FIG. **7**. A user engages impact hammer **208** with opening **206** of keyed adapter **200**. Keyed portion **202** then engages a keyed opening **210** in keyed socket **212**. Opening **214** then engages a rotatable driveshaft (not illustrated) to raise and lower trailer jacks.

In another embodiment of the present invention, impact hammer **208** may comprise a keyed portion so as to engage a keyed socket directly without use of a keyed adapter. A keyed socket is useful in preventing theft, as an ordinary impact hammer cannot be used unless one has the adapter.

While the invention has been described with respect to preferred embodiments, it is not to be considered limiting of scope. Thus, the scope of the invention is defined by the appended claims.

What is claimed is:

1. A socket device for use with the rotatable driveshaft of trailer jacks, the socket device comprising:

a sleeve portion with an opening on a first end sized to engage a rotatable driveshaft and a keyed opening on a second end for receiving an impact hammer wherein the keyed opening is in the shape of a W.

2. A socket device for use with the rotatable driveshaft of trailer jacks, the socket device comprising:

a sleeve portion with an opening on a first end sized to engage a rotatable driveshaft and a keyed opening on a second end for receiving an impact hammer wherein the keyed opening is in the shape of an S.

3. A method for raising and lowering trailer jacks, the method comprising:

engaging the rotatable driveshaft of a trailer jack with a socket device;

coupling the socket device with an impact hammer; and

raising or lowering the jacks;

wherein the impact hammer comprises a keyed portion and wherein the socket device comprises a sleeve portion with an opening on a first end sized to engage a rotatable driveshaft and a keyed opening on a second end for receiving the keyed portion of the impact hammer and wherein the keyed portion is in alphanumeric shape.

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